UNITED NATIONS

World Chronicle

PROGRAMME: No. 605, recorded 1 November 1995

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INTERNATIONAL ATOMIC ENERGY AGENCY

Hans BLIX, Director-General of the International Atomic Energy Agency (IAEA), discusses his Agency's efforts to promote the peaceful applications of nuclear energy and prevent the further spread of nuclear weapons. The IAEA is recognized as the competent authority responsible for verifying compliance with safeguards agreements. Recently, more countries have signed the Non-Proliferation Treaty and opened their nuclear facilities for international inspection. He characterizes the IAEA as a watchdog which can bark, sniff and watch, but cannot bite. Mr. Blix believes that nuclear energy is the energy of the future because it is clean, inexpensive and safe.

WORLD CHRONICLE is produced by the Media Division, Department of Public Information, United Nations, New York, NY 10017, U.S.A.

Duration:	28:00"
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ANNOUNCER: From United Nations Headquarters in New York, this is **World Chronicle**, an unedited interview programme about major global issues. Here now to introduce our guest is the host of today's **World Chronicle**.

LITTLEJOHNS: I'm Michael Littlejohns, and this is **World Chronicle**.

Since the harnessing of nuclear energy more than 50 years ago, countries have endeavoured to possess the technology for both military and peaceful purposes. To prevent the spread of nuclear weapons and technology, in 1957 the world community established the International Atomic Energy Agency, or the IAEA. In 1970 the Treaty on the Non-Proliferation of Nuclear Weapons entered into force. The parties to this Treaty recently convened a conference and decided to extend the agreement indefinitely. Are the nations of the world honouring their commitment to non-proliferation, or are they still trying to acquire this deadly technology?

Our guest today is Hans Blix, Director-General of the IAEA. Joining me to talk with Mr. Blix are Bhaskar Menon of the *International Documents Review* and Afsane Bassir Pour of *Le Monde*.

Mr. Blix, welcome to World Chronicle. Mr. Blix, can we quickly answer that question: Are they abiding by their commitments?

BLIX: I think one can say that the Non-Proliferation Treaty has been a very great success, together with the Latin American treaty for a nuclear weapon-free zone [Treaty for the Prohibition of Nuclear Weapons in Latin America]. Today, most Governments of the world are parties to that Treaty, and in fact you have only three important States that are not — namely, Israel, in the Middle East, and India and Pakistan. And in the last few years we have had countries like Argentina and Brazil join in the regime, Cuba signing, not yet ratified, and Algeria, South Africa — South Africa even rolling back from a nuclear weapon-State status. So I think that it's been a very great success.

LITTLEJOHNS: We've heard a good deal of attention paid to North Korea. What's the situation there now?

BLIX: The situation is that they did join the Non-Proliferation Treaty; they also entered into a safeguards agreement with us. But under our verification regime, we discovered that there were signs showing that they had more plutonium than they had declared. It might be grams or it might be kilograms, we cannot tell; we can only tell quantitatively that they have more. And of course that doesn't inspire confidence. And when we demanded to see some sites which we had good reason to believe were related to nuclear waste, they denied us that access. And so a crisis was precipitated which in part was solved by the so-called agreed framework reached by the United States and

DPRK in the autumn of 1994. And now North Korea has agreed to freeze its graphite-moderated reactors and some other installations and gradually to dismantle them. And we are monitoring that. The safeguards agreement is still valid, and we are demanding that they should give us the history of their programme and allow us to monitor what they really have by way of plutonium. This they have not yet gone along with. So they are in non-compliance with the safeguards agreement, but for the rest, you might say that the verification is in tolerable shape at the moment.

LITTLEJOHNS: And another country, Iraq — what about them?

BLIX: Well, Iraq was a sort of watershed for the IAEA, because before Iraq the verification we performed under the Non-Proliferation Treaty was focused always upon declared installations and declared material, and it was thought that it would be very difficult for States to conceal any big nuclear installations, so that one could content oneself with the declared ones. Well, Iraq proved that that hypothesis was wrong. It was feasible for Iraq to conceal a very huge, billion dollar programme, which they mounted to enrich uranium and thereby get the material which you can make bombs with. So after Iraq we have tried to strengthen the safeguards system, making it possible for us, with a fairly high degree of probability, to discover if there is anything hidden. Now, that is a lot more difficult than to go to declared installations, and one of our most important tasks today is to have all our Governments agree that we can go for no-notice or short-notice inspections, or that we can use so-called environmental monitoring, which means that you take tiny samples of water or air or soil and analyze it, and if there is any business going around which they haven't declared, we are likely to discover that. So very strong, much strengthening of the safeguards system is going on right now.

MENON: Could I take you back to your earlier statement that the NPT had been a major success?

BLIX: Right.

MENON: You were of course referring to the one aspect of the NPT which refers to the non-proliferation aspect of it horizontally. How about the vertical proliferation of nuclear weapons and the continued development of nuclear weapons technology?

BLIX: Well, as you know, in the Non-Proliferation Treaty there are two types of pledges: there's the pledge of the non-nuclear weapon States not to acquire nuclear weapons, and then there is the pledge of the nuclear weapon States, all the five declared ones, that they will negotiate towards nuclear disarmament. And for many years one could say, and many people said, that they haven't been very successful in those negotiations. Now, in the last period after the detente, of course, there's been much

more. In particular, the START II agreement, under which the nuclear stockpiles of the US and of Russia will go down from some 60,000 to 6,000 each, is very important. However, they still have a long way to go. And I would read the outcome of the NPT Conference as really a pledge towards a nuclear weapon-free world, where the non-nuclear weapon States agree that, yes, we will remain non-nuclear weapon, and the nuclear weapon States declare that we will continue with disarmament, notably a complete test ban agreement, a cut-off agreement, et cetera, until we get to a nuclear....

MENON: Immediately after the NPT was extended indefinitely, you had two nuclear weapon States — China and France — resume their nuclear weapons testing.

BLIX: Right.

MENON: What role does the IAEA play in nuclear weapon States in so far as verifying that they're at all acting on their commitments under the NPT?

BLIX: Well, their commitment under the NPT is properly to negotiate towards nuclear disarmament, so you don't have to send inspectors to do that.

MENON: No, but you do have an assessment role there. I mean, do you have an assessment role there?

BLIX: No, not really.

MENON: No? Do you assess that these people not negotiate in good faith?

BLIX: Well, we can all do that! [*laugh*] We see if they do it, and my feeling is that yes, since the detente and the end of the cold war, yes, they are negotiating. Some of it could go faster, we would hope it would do, and in particular, of course, we all hope that there will be a complete test ban agreement in 1996.

MENON: But do you have a role in the nuclear weapon States, for instance, collecting information, inspections? Because one of the key —

BLIX: Some.

MENON: — one of the key problems in verifying a total test ban is that now some States have the capacity to conduct nuclear tests without actually conducting a test — they can do it in a laboratory, they can do it with computer simulations. Does the IAEA have a role in studying that?

BLIX: Well, until now, our role in the nuclear weapon State has been very limited. Firstly, under the Non-Proliferation Treaty they have made voluntary offers to the IAEA to perform inspections on their peaceful nuclear installations. And we have done that to some extent, but more tokenism than anything, because they already have nuclear weapons. So we cannot verify that they're not taking that step. And therefore it hasn't been worth so many millions of dollars. However, what we have seen lately is something new: namely, that when they are dismantling weapons, and when, hence,

plutonium or highly-enriched uranium becomes available, they want to show that this really stays in peaceful use. So the United States has offered us to come in and to verify that this material is only in peaceful use. And we verify that in the United States. Not yet in Russia. But this is a bit slow in coming. Of course, if there were to be an agreement not to produce plutonium or highly-enriched uranium for weapons purposes in the future, then there would have to be a full inspection of all their reprocessing and enrichment plants, and that is a fairly big undertaking that is not yet on the scene.

BASSIR POUR: Dr. Blix, I'd like to stay on the nuclear testing in particular with regard to France. Now, the French Government, on the one hand, has signed the NPT, but doing the test shows that they don't really want to disarm. On the other hand, they say that they have to do this test to verify the reliability of their nuclear weapons. Could you tell me if these tests are really essential to the functioning of their nuclear weapons?

BLIX: No, not really, because we are not experts in nuclear weapons. We are experts on verifying peaceful nuclear programmes, to testify that they are not military ones. In the case of France, they are a nuclear weapon State, and I cannot give you any intelligent judgement whether they really need to test the weapons for reliability or for safety, as is often said. It seems to me that this is a bit of semantics, because when they talk about safety in nuclear weapons what they mean is that they should go off.

BASSIR POUR: Right.

BLIX: Well, I think that that really means that they remain dangerous, rather than they are safe!

BASSIR POUR: Well, then, let's go back to the part that you do deal with. What's the future of nuclear energy?

BLIX: I think it is inevitable that nuclear energy will have a revival. It was set back very strongly by the Three Mile Island accident, and even more, of course, by the Chernobyl accident. But we have to recognize, at the same time, that nuclear energy, nuclear power reactors — over 400 of them — we have now experience of over 6000 reactor years of operation with only one big and terrible accident, in Chernobyl. On the other hand, nuclear energy, nuclear power, does not yield any carbon dioxide, which everybody links to the risk of the greenhouse effect, the global warming; nor does it produce any sulphur dioxide, which is linked to the acid rains, or the nitrogen oxides, which are also linked to the acid rains. If the world, as seems likely at present, will get much more worried about the carbon dioxide, then they will have to get worried about coal, oil and gas use. These are the dominant sources of energy in the world; to a very large extent we rely upon them. But, while at present we say, and the conferences say, that we have to reduce the use of coal, oil and gas, the reality is that the whole world is

using more and more of it. So in my view, the rhetoric of the global warming business is going in one direction, and the reality is going in another. And at some point I think people will discover that nuclear power is not connected with this. It's not without risks; no energy generation is totally without risks. I'm not maintaining that. However, you have to choose what you think is least dangerous. In my view there is no doubt that the world will discover that nuclear is less of a risk.

BASSIR POUR: But it's not just —

LITTLEJOHNS: But what about the —

BASSIR POUR: Sorry.

LITTLEJOHNS: No, go ahead.

BASSIR POUR: It's not just the accidents. We also have to keep in mind rogue States — two of them were mentioned by Michael; there's Iran also — that could abuse the nuclear reactors. How do you deal with those States?

BLIX: Well, it used to be said that nuclear power and nuclear bombs are Siamese twins, and that if you go for development of nuclear power, then by the same token you're also advancing nuclear weapons. But the reality is that while the world has built more and more nuclear power plants — not as many as I think would be desirable, but built more — at the same time we have had more and more States committing themselves to non-proliferation. I mentioned a while ago Argentina, Brazil, South Africa, Algeria, et cetera. And we only have a few States now which are not a party, so then you have some States about which there are question marks. And I think that, encouraged by the past, we could go on in the future and reach one day a universalization of the non-proliferation regime plus safeguards verifications that are stronger than we had before Iraq.

LITTLEJOHNS: Mr. Blix, you told the General Assembly of the United Nations recently that only 17 per cent of electricity in the world is generated by nuclear power stations.

BLIX: Right.

LITTLEJOHNS: Why is that? If it's as great as you say it is, how come it's not more popular?

BLIX: Well, 17 per cent, mind you, is not so little. It's about the same as all the hydropower that the world gets. I don't think you'd say that hydropower gives little electricity. So 17 per cent is quite a lot. But the reasons why you don't have more, why we have been disappointed in the amount of nuclear power built, of course, is basically public opposition. There was at one time a recession, there was not so much electricity needed as projected, et cetera, but since then there is no question that in the United

States, for instance, the opposition — or in my country, Sweden, or in many other countries — it's the opposition to nuclear power that has stopped it. And I think that there is too little said by Governments. They are afraid of losing votes by demonstrating how much they understand that nuclear perhaps may be inexpensive.

LITTLEJOHNS: You imply that it's so clean, nuclear power.

BLIX: Yes, yes.

LITTLEJOHNS: What about the nuclear waste?

BLIX: Well, the nuclear waste — if I were to be provocative, I would say that's perhaps the greatest asset of nuclear power, for the simple reason that it is so small. You see, if I take the nuclear plant in Austria which they never opened up — it's about, what? 900 megawatts — it will require five train loads of coal per day for operation. Five train loads. And you get waste that is accordingly big. Now, if you take nuclear power, you only have a few pins of nuclear fuel, uranium fuel, per day, and hence the volume of waste is accordingly small. And this makes it possible to isolate the nuclear waste in its totality, whereas with the waste of coal in particular, and oil, the waste is so huge that you cannot isolate it. It goes into the atmosphere and to the surface of the earth. So the final disposal site of the waste of fossil fuels is our atmosphere. And that is, hence we have the problem of the greenhouse effect.

LITTLEJOHNS: This is **World Chronicle**. Our guest is Hans Blix, the Director-General of the International Atomic Energy Agency.

MENON: Two questions. One, when you talk about the lack of — how safe nuclear energy is, there are studies which show, for instance, that the incidence of cancer is higher in a 50-mile radius of every nuclear power plant. And it's not just one study, there has been a succession of studies pointing to higher cancer rates around nuclear power plants. How do you deal with that? And secondly, when the IAEA is in the business, on the one hand, of trying to force the nuclear genie back in the bottle, how can it at the same time be letting the genie out of the other side of the bottle? How do you reconcile the two?

BLIX: All right, there are two questions. And your first one was, again?

MENON: Was about the cancer.

BLIX: The cancer rate. Well, you know, the interesting thing about that is that you find inquiries in France, for instance, where they discovered that the cancer rate was higher also around some places where they were planning nuclear power plants. Now, that's going a bit far, especially as it's leukaemia that they've been looking at. Leukaemia cancer is something that comes in clusters. And there are cases where you've found clusters of leukaemia cases not too far from nuclear power plants, but you

also find such clusters in many other places. So all these things, as soon as anyone discovers something bad near a nuclear power plant, it's published. And rightly so, I'm not against that. But upon inquiry, this is not tenable. Nuclear power plants actually have much less of pollution around themselves than a coal power plant. In fact, even radioactivity is higher around a coal power plant than around a nuclear, because so much uranium is released from the burning of the coal that you have a higher radioactivity. You have to look at all these criticisms very, very carefully. And I'm not saying you just brush them aside, no; but look at them carefully and you'll find that they're rather empty.

MENON: And the second question was what is the profile of your agency? What part of the IAEA promotes nuclear energy and what part of your organization....

BLIX: Yes. The question is often formulated like this: How can you be a strong regulatory agent if, at the same time, you have the duty to promote? Well, I would draw the parallel to, say, the Food and Drug Administration of the United States, the FDA. Would you buy medicine here unless you knew that there was a strong organization that looked at the quality and the safety of the medicine? My position is that you have the regulatory part; the demanding of safety is the most promotional you can do. And actually, we are not engaged in selling or giving out glossy pamphlets about the beauty of nuclear power. If you ask me about it, then I answer, but we are not out in the propaganda business. Our major job is dealing with increasing the safety always, and the safety of the nuclear waste, and the non-proliferation. If we succeed in those areas, I think that we will also —

MENON: But what percentage of your agency, of your staff, say, are working on safeguards, non-proliferation?

BLIX: Non-proliferation is about one-third of the staff. And I would say that in public information it's perhaps, I don't know, three, four per cent of our expenditure — it's a very small part.

BASSIR POUR: Dr. Blix, while we're on the subject, tell us about the cost of nuclear energy as opposed to other sources of energy.

BLIX: Well, like most things about nuclear power, it is controversial. And if you ask anyone on the Green side, they'll probably say that it's too expensive, and that it cannot compete. It depends where you are. The OECD, the European organization, which is not a nuclear organization, made studies of this, and in some countries they concluded that nuclear power is more economic than any fossil fuel. I would say roughly equal with coal, if we take it all over the world. It is comparatively. There may be some variations, but nuclear power-generated electricity and coal-generated electricity would

be roughly equal. There's not a tremendous difference, at any rate. However, the difference is very great in the renewable sources of energy. If you move to biomass or to solar or wind power, that is a lot more expensive than either the coal or the nuclear. At the present time. Now, they're coming down. Some of them have already come down. They will come down further. But the World Energy Conference, which, again, is not a nuclear organization, and recently met in Tokyo, they did not believe that you would have any significant increase in the next number of decades from the renewable sources of energy.

MENON: In which countries is nuclear power actually growing?

BLIX: Well, in the Far East in particular — in Japan, South Korea and China. South Korea has now 10 nuclear power plants in operation. They have six under construction and many more on the decision board as well. China is also moving fairly rapidly. And Japan has one of the most important and successful nuclear power programmes in the world. In Europe it's largely stagnating; in the United States it's been stagnating.

MENON: Even in France?

BLIX: No, France is still building more power plants, but at a much slower pace. There about 75 per cent, if not more, of their electricity comes from nuclear power, so they have built quite a lot. They also export a lot of electricity generated by nuclear power to countries that are opposed to nuclear power, like Switzerland. [*laugh*] Well, perhaps I shouldn't say they're opposed to it, but they have a freeze, so they don't build more nuclear plants in Switzerland.

BASSIR POUR: There's been a lot of talk about nuclear weapon-free zones. The Middle East is one of the controversial ones. During the NPT Conference, the Arab States were very reluctant to sign, as you remember, citing Israel in particular. Now, what do you think are the chances of ever achieving a nuclear weapon-free zone, especially in the Middle East?

BLIX: I think it's indispensable in the Middle East, but I am pessimistic about having it before the peace process is complete. I think that for the Israelis their perception is that this is something that gives them safety. I don't discuss whether it's right or not, but I think that's the perception; therefore I think it's unlikely they would go along with the zone before peace is established. However, I cannot imagine that the Arab States would feel that the peace would be complete if they had one country in the region which still sits on nuclear weapons. And therefore I think that both sides will recognize that they need — and in fact they do — the resolution; they recognize that

nuclear weapon-free zones will be necessary and that very strong verification will be needed.

BASSIR POUR: Do you have any control right now over the Israeli nuclear plants?

BLIX: Well, we have some things in Israel that are submitted to our verification, but of course not the reprocessing capacity that they have. So it's assumed that they have that capacity.

MENON: You know, one of the problems you've mentioned in the General Assembly is the fact that you can't get competent staff at what you called the so-called UN rates of common system of payment. What are you suggesting? That you should be allowed to pay more?

BLIX: Well, that's one thing. You see, there is so much criticism of inefficiency and of lack of coordination in the UN system, and the only way in which we in the secretariats can operate well and serve the Governments to the demands they've placed upon us is by having skilled and competent staff. And this —

MENON: You're basically talking about 30 to 40 per cent increase in the rates of pay.

BLIX: Well, the salaries of our professional staff in Vienna have been eroded by something like 20 per cent. It hasn't kept pace, it's come down all the time.

LITTLEJOHNS: Is that because of the higher cost of living, or exchange rates?

BLIX: Well, it's all kinds of factors that work on it, but the net result is lower salaries today, and those who have been there for some time, they feel it. But above all, it's harder for us to recruit staff. Only 4 to 6 per cent of those who apply for a particular job are coming up to the standards that we set.

MENON: And how many staff do you have overall?

BLIX: 2,300.

MENON: And if you put into place a much stricter regime of inspections, surprise inspections and so on, what do you envisage your staff situation is going to be?

BLIX: Well, in the longer run I don't think we'll need much more people. In the short term there will be a hump, but in the longer run we think that we will gain some techniques which make it more effective, and we can then reduce some of the inspections. That is the expectation. So in the long term we all hope that the stronger safeguards will be cost-neutral. In the short term that might not be the case.

BASSIR POUR: Do we have time?

LITTLEJOHNS: Sure.

BASSIR POUR: If I could talk about a nightmare scenario, just — people are scared. I mean, you try to reassure us that we should be scared. But let's say that the gulf war hadn't happened, what could have happened in Iraq?

BLIX: Well, very likely they would have continued on the path of their nuclear programme, and in due course presumably been able to make a nuclear weapon.

BASSIR POUR: And may have used it on Israel.

BLIX: Well, that we don't know. The Israelis presumably have some capacity too, so....

BASSIR POUR: Aren't those kind of rogue States sufficient reason to not promote in some areas nuclear systems?

BLIX: But who is a rogue State?

BASSIR POUR: Well, there are lots of them right now. And another problem you have to deal with presumably is Iran right now.

BLIX: Well, in many countries there are skepticisms and suspicions raised vis-à-vis Iran, but you will remember that the Shah of Iran had a huge nuclear programme which was warmly supported by Western States who were eager to export to him. So someone who may be pointed to as a rogue today may not have been it in the past; countries change. I think the only way you can come about this, or handle this, is that you have to have very strict verification, so that with a high degree of probability you discover something. Now, we are not a police organization; we are only inspectors. We can report, and we have to report them to the Security Council, which we did in the case of the DPRK. And it is then for the world's powers, the big military strong powers in the Security Council, to take action. They had pledged in the Security Council that they would do so. How they will do it I think will vary from one case to the other. In the case of Iraq, they sent half a million men. In the case of the DPRK, you had a negotiation under which North Koreans will get two light water reactors with an interest-free loan, and that they are promising to dismantle their present programme. So I think — I cannot predict how the world will go about it, but I think I can be absolutely sure that there will be strong actions taken in unison between the five nuclear weapon States and many more to prevent the other States from going nuclear.

MENON: Would it be fair to describe the IAEA, in the direction it's evolving, would it be fair to describe it as the first UN intelligence agency?

BLIX: Well, not quite, because intelligence plays such a small role. I mean, we do see satellite pictures, or we have some intelligence come in to us, and I'm not saying no to any information. But you have to be very critical and careful with that, because there's as much disinformation around in this world as there is information about. I

think you could characterize us as the world's first nuclear watchdog. This watchdog is supposed to sniff and to have a good sense of smell and good eyes, and to bark but not to bite. It's for the Security Council to bite.

BASSIR POUR: Do Member States still have confidence in your agency?

BLIX: Well, that's what the resolution of the General Assembly says. I think they do. I mean, we are very transparent, they know our strengths and our weaknesses, and I think they see that it's being strengthened. I don't think one can come to 100 per cent certainty, but we have come a long way, and we say honestly where we are, and therefore I think they have confidence in us.

LITTLEJOHNS: Mr. Blix, you've been a very interesting guest as always on this programme, but I'm afraid we're out of time. Thank you for being on this programme. This is the latest edition of World Chronicle. Our guest has been Hans Blix, Director-General of the International Atomic Energy Agency. He was interviewed by Bhaskar Menon of the *International Documents Review* and Afsane Bassir Pour of *Le Monde*. I'm Michael Littlejohns. Thank you for joining us. We invite you to be with us for the next edition of **World Chronicle**.

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